



INSTALLATION MANUAL

Outdoor unit for air to water heat pump

ERHQ006ADV3
ERHQ007ADV3
ERHQ008ADV3

ERHQ006ADV39
ERHQ007ADV39
ERHQ008ADV39

CE - DECLARATION-OF-CONFORMITY
CE - KONFORMITÄTSERKLÄRUNG
CE - DECLARATION-DE-CONFORMITE
CE - KONFORMITEITSVERKLARING

CE - DECLARACIÓN-DE-CONFORMIDAD
CE - DICHARAZIONE-DE-CONFORMITA
CE - ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ
CE - FORSKRAN-OM-ÖVERENSTEMMELSE

CE - ERKLÆRING OM-SAMSVAR
CE - ILMOITUS-YHDENMUKAISUDESTA
CE - DEKLARACJA-ZGODNOSCI
CE - DECLARAȚIE-DE-CONFORMITATE

CE - IZJAVA O SKLADNOSTI
CE - IZJAVA-OU-SKLABENOSTI
CE - MEGFELELŐSÉG-NYILATKOZAT
CE - DEKLARACJA-ZGODNOSCI
CE - DEKLARACIJA-3A-CЪОТВЕТСТВИЕ

CE - ATTIKITES-DEKLARACIJA
CE - ATBILSTĪBAS-DEKLARACIJA
CE - VYHLÁSENIE-ZHODY
CE - UYUMLUKLUK-BILDIRİSİ

Daikin Europe N.V.

- 01 060 declares under its sole responsibility that the equipment to which this declaration relates:
02 061 erklärt auf seine alleinige Verantwortung, dass die Ausrüstung für die diese Erklärung bestimmt ist:
03 062 déclare sous sa seule responsabilité que l'équipement visé par la présente déclaration:
04 063 verklaart hierbij op eigen exclusieve verantwoordelijkheid dat de apparatuur waarop deze verklaring betrekking heeft:
05 064 declara bajo su única responsabilidad que el equipo al que hace referencia la declaración:
06 065 dichiara sotto la propria responsabilità che gli apparecchi a cui è riferita questa dichiarazione:
07 066 δηλώνει αποκλειστικά τις εαφής ότι ο εξοπλισμός στον οποίο αναφέρεται η παρούσα δήλωση:
08 067 declara sob sua exclusiva responsabilidade que os equipamentos a que esta declaração se refere:

ERHQ006ADV3*, ERHQ007ADV3*, ERHQ008ADV3*,
* = , , 1, 2, 3, ..., 9, A, B, C, ..., Z

- 01 are in conformity with the following standard(s) or other normative document(s), provided that these are used in accordance with our instructions:
02 der/den folgenden Norm(en) oder einem anderen Normdokument oder dokumenten entspricht/entsprechen, unter der Voraussetzung, dass sie gemäß unseren Anweisungen eingesetzt werden:
03 sont conformes à laux norm(s) ou autre(s) document(s) normatif(s), pour autant qu'ils soient utilisés conformément à nos instructions:
04 conform de volgende norm(en) of één of meer andere bindende documenten zijn, op voorwaarde dat ze worden gebruikt overeenkomstig onze instructies:
05 están en conformidad con las) siguiente(s) norma(s) u otro(s) documento(s) normativo(s), siempre que sean utilizados de acuerdo con nuestras instrucciones:
06 sono conformi all(i) seguente(i) standard(i) o altro(i) documento(i) a carattere normativo, a patto che vengano usati in conformità alle nostre istruzioni:
07 είναι σύμφωνα με τις οδηγίες μας, υπό την προϋπόθεση ότι χρησιμοποιείται το/τα ακόλουθο(α) πρότυπο(α) ή άλλο(α) έγγραφο(α) κανονιστικό(α), υπό την προϋπόθεση ότι χρησιμοποιείται σύμφωνα με τις οδηγίες μας:
- 11 enligt villkoren i:
12 gilt i henhold til bestemmelserne i:
13 noudatteen määrätyssä:
14 za doortleen uitsnoveni pletpisu:
15 prema odredbama:
16 követeli a(z):
17 zgodnie z postanowieniami Dyrektywy:
18 in urma prevederilor:
- 19 ob upoštevanju določb:
20 v skladu s predpisanimi pogoji:
21 sredstavki krajcarja va:
22 lakantis nuostai, patikiamų:
23 leierogit prasbas, kas noteiktas:
24 održavajuc ustanovienai:
25 bunun kullallama uygun olarak:

EN60335-2-40,

- 01 following the provisions of:
02 gemäß den Vorschriften der:
03 conformément aux stipulations des:
04 overeenkomstig de bepalingen van:
05 segundo las disposiciones de:
06 secondo le prescrizioni per:
07 με την εντολή των διατάξεων των:
08 de acordo com o previsto em:
09 в соответствии с положениями:
- 11 enligt villkoren i:
12 gilt i henhold til bestemmelserne i:
13 noudatteen määrätyssä:
14 za doortleen uitsnoveni pletpisu:
15 prema odredbama:
16 követeli a(z):
17 zgodnie z postanowieniami Dyrektywy:
18 in urma prevederilor:

- 01 Note * as set out in and judged positively by
02 Hinweis * wie in der aufgeführt und von positiv beurteilt gemäß Zertifikat
03 Remarque * tel que défini dans et évalué positivement par conformément au Certificat
04 Bemerk * zoals vermeld in en positief beoordeeld door overeenkomstig Zertificaat
05 Nota * como se establece en y es valorado positivamente por de acuerdo con el Certificado
06 Nota * delimitat nel e giudicato positivamente da secondo il Certificato
07 Znakun * onus, vobolpctio otto kai kolveta bend otto to okupovo je to fluoronorniko , tal como establecido em e com o parecer positivo de de acordo com o Certificado
08 Nota * jak bylo uvedeno v a pozitivně zjišeno v souladu s osvědčením
09 Примечание * как указано в и в соответствии с Сертификатом
10 Bemerk * som attört i og positivt vurderet af i henhold til Certificat

- 09 068 заявляет, исключительно под свою ответственность, что оборудование, к которому относится настоящее заявление:
10 069 erklærer som eneansvarlig, at udstyret, som er omfattet af denne erklæring:
11 070 deklarerar i egenansvar, att utrustningen som berörs av denna deklaration innebär att:
12 071 erklærer et fuldstændigt ansvar for at det udstyr som berøres af denne deklaration, indebærer at:
13 072 ilmoittaa yksinomaan omalla vastuullaan, että laitain ilmoituksen tarkoituksella liittett:
14 073 prohlásuje ve své plné odpovědnosti, že zařízení, k němuž se tato prohlášení vztahuje:
15 074 glavilje pod skljivo vlastnom odgovornostu da oprema na koji se ova glava odnosi:
16 075 teljes felelősség tudatában kijelenti, hogy a berendezések, melyekre e nyilatkozat vonatkozik:

- 17 076 deklarie na vlastní výražnou odpovědnost, že zařízení, kterých ta deklaracia dotyczy:
18 077 deklari ja propre răspundere că echipamentele la care se referă această declarație:
19 078 zviso odgovornostjo glavlja, da je oprema naprav, na katero se glava nanaša:
20 079 kinnitab oma täieliku vastutuse, et käesoleva deklaratsiooni alla kuuluv varustus:
21 080 deklariira na oiaa ottoovastust, et õigudavarero, za kiero de otvaret taa, deklariira:
22 081 viskša savo atsakomybės skelbia, kad janga, kuriai laikoma š deklaracija:
23 082 vyhlási na vlastní zodpovednost, že zařízení, uz kterém attleas ší deklaracia:
24 083 vyhlási na vlastní zodpovednost, že zařízení, na ktoré sa vzťahuje toto vyhlásenie:
25 084 lanamen kendi sorumluluğunda olmak üzere bu bildirimin ilgili donanimin aşağıdaki standartlar ve norm belirleterle uyumludur:

- 08 estão em conformidade com a(s) seguinte(s) norma(s) ou outro(s) documento(s) normativo(s), desde que estes sejam utilizados de acordo com as nossas instruções:
09 соответствуют следующим стандартам или другим нормативным документам, при условии их использования согласно нашим инструкциям:
10 overholder følgende standard(er) eller andet/andre retningsgivende dokument(er), brudsat at disse anvendes i henhold til vore instrukser:
11 respektive utrustning är utförd i överensstämmelse med och följer följande standard(er) eller andra normgivande dokument, under förutsättning att användning sker i överensstämmelse med våra instruktioner:
12 respektive udstyr er i overensstemmelse med følgende standard(er) eller andre normgivende dokument(er), under forudsætning af at disse brueses i henhold til vore instrukser:
13 rastaaat seuraavien standardien ja muiden ohjeellisten dokumenttien vastainuksia edellytään, että niitä käytetään ohjeidemme mukaisesti:
14 za předpoklad, že jsou využívány v souladu s našimi pokyny, odpovídají následujícím normám nebo normativním dokumentům:
15 u skladu sa slijednim standardom(n)ima) ili drugim normativnim dokumentom(n)ima), uz uvjet da se oni koriste u skladu s našim uputama:

Low Voltage 2006/95/EC
Machinery 98/37/EC
Electromagnetic Compatibility 2004/108/EC *

- 01 Directives, as amended.
02 Direktiven, gentåg Änderung.
03 Directives, telles que modifiées.
04 Richtlijnen, zoals gewijzigd.
05 Directivas, según lo emendado.
06 Direktive, come da modifica.
07 Ohjelmät, muut, Euvon pöytäkirjoilla.
08 Directivas, conforme alteração em.
09 Директиве со всеми поправками.
- 10 Direktive z vsemi spremembami.
11 Direktiv, med förelägg ändringar.
12 Direktiver, с темири изменения.
13 Direktiveja, saetasta kun te oia muutetutina.
14 v pärimen zneni.
15 Snemice, kako je izmijenjeno.
16 řavenek) ds mōstōlāsik rēndekzēsait.
17 z pōžnejšimi popravkami.
18 Direktivelor, cu amendamentele respective.

- 21 Забелешка * карто е корисно в и оверено покривено от самачо
22 Pastaba * kap nusaytia ir kap belgama nuspreta pagal Sertifikaat
23 Pezimes * ka norādis un atbilstoš pozitīvajam vērtējumam saņemā a sertifikāt
24 Poznámka * ako bolo uvedeno v a pozitívne zistené v súlade s osvedčením
25 Not * da beirtiligi gbi, ve Sertifikaama gře tsatindan olumu olarak deđerlendirildi gbi.

DAIKIN



Jiro Tomita
Director Quality Assurance
Ostend, 1st of September 2008

DAIKIN EUROPE N.V.
Zandvoordestraat 300, B-8400 Oostende, Belgium

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READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION. KEEP THIS MANUAL IN A HANDY PLACE FOR FUTURE REFERENCE.

IMPROPER INSTALLATION OR ATTACHMENT OF EQUIPMENT OR ACCESSORIES COULD RESULT IN ELECTRIC SHOCK, SHORT-CIRCUIT, LEAKS, FIRE OR OTHER DAMAGE TO THE EQUIPMENT. BE SURE ONLY TO USE ACCESSORIES MADE BY DAIKIN WHICH ARE SPECIFICALLY DESIGNED FOR USE WITH THE EQUIPMENT AND HAVE THEM INSTALLED BY A PROFESSIONAL.

IF UNSURE OF INSTALLATION PROCEDURES OR USE, ALWAYS CONTACT YOUR DAIKIN DEALER FOR ADVICE AND INFORMATION.

SAFETY PRECAUTIONS

- This manual classifies the precautions into WARNING and CAUTION. Be sure to follow all the precautions below: they are all important for ensuring safety.



Failure to follow any of WARNING is likely to result in such grave consequences as death or serious injury.

Failure to follow any of CAUTION may in some cases result in grave consequences.

- The following safety symbols are used throughout this manual.



Be sure to observe this instruction.



Be sure to establish an earth connection.




Never attempt.

- After completing installation, test the unit to check for installation errors. Give the user adequate instructions concerning the use and cleaning of the unit as included in the operation manual of the indoor unit.


Warnings

- Installation should be left to the dealer or another professional. Improper installation may cause water leakage, electrical shock, or fire.
- Install the outdoor unit according to the instructions given in this manual. Incomplete installation may cause water leakage, electrical shock, or fire.
- Be sure to use the supplied or specified installation parts. Use of other parts may cause the unit to vibrate loose, and may cause water leakage, electrical shock, or fire.
- Install the outdoor unit on a solid base that can support the weight of the unit. An inadequate base or incomplete installation may cause injury in the event the unit falls off the base.
- Electrical work must be carried out in accordance with the installation manual and the national electrical wiring rules or code of practice. Insufficient capacity or incomplete electrical work may cause electrical shock or fire.
- Be sure to use a dedicated power circuit. Never use a power circuit shared by another appliance.
- For wiring, use a cable long enough to cover the entire distance with no connection. Do not use an extension cord. Do not put other loads on the power supply, use a dedicated power circuit. Failure to do so may cause abnormal heat, electric shock, or fire.
- Use the specified types of wires for electrical connections between the indoor and outdoor unit. Firmly clamp the interconnecting wires so that their terminals receive no external stress. Incomplete connections or clamping may cause terminal overheating or fire.
- After connecting the interconnecting and supply wiring, be sure to shape the cables so that they do not put undue force on the electrical covers or panels. Install covers over the wires. Incomplete cover installation may cause terminal overheating, electrical shock, or fire.
- If any refrigerant has leaked out during the installation work, ventilate the room. The refrigerant produces a toxic gas if exposed to flames.
- After all installation is complete, check to make sure that no refrigerant is leaking. The refrigerant produces a toxic gas if exposed to flames.
- When installing or relocating the system, be sure to keep the refrigerant circuit free from substances other than the specified refrigerant (R410A), such as air. Any presence of air or other foreign substance in the refrigerant circuit causes an abnormal pressure rise or rupture, resulting in injury.
- During pump down operation, stop the compressor before removing the refrigerant piping. If the compressor is still running and the stop valve is open during pump-down, air will be sucked in when the refrigerant piping is removed, causing abnormal pressure in the freezer cycle which will lead to breakage and even to injury.



- During installation, attach the refrigerant piping securely before running the compressor.
If the compressor is not attached and the stop valve is open during pump-down, air will be sucked in when the compressor is running, causing abnormal pressure in the freezer cycle which will lead to breakage and even to injury.
- Be sure to establish an earth. Do not earth the unit to a utility pipe, surge absorber, or telephone earth. 
Incomplete earth may cause electrical shock. A high surge current from lightning or other sources may cause damage to the outdoor unit.
- Be sure to install an earth leakage circuit breaker.
Failure to do so may cause electrical shock.

Cautions




- Do not install the outdoor unit in a place where there is danger of exposure to inflammable gas leakage. 
If the gas leaks and builds up around the unit, it may catch fire.
- Tighten the flare nut according to the specified method such as with a torque wrench.
If the flare nut is tightened too hard, the flare nut may crack after a long time and cause refrigerant leakage.

MODEL


ERHQ_V39 units include special equipment to ensure good operation in areas where low ambient temperature can occur together with high humidity conditions. In such conditions the ERHQ_V3 models may experience problems with severe ice build up on the aircooled coil. In case such conditions are expected, the ERHQ_V39 must be installed instead. These models contain countermeasures to prevent freeze up (insulation, a bottom plate heater, ...).

ACCESSORIES

- Accessories supplied with the outdoor unit:

Installation manual	1x	
Fluorinated greenhouse gases label	1x	
Multilingual fluorinated greenhouse gases label	1x	

- Possible options

	Bottom plate heater		Drain socket
	ERHQ_V3	Optional kit ⁽¹⁾	Optional kit ⁽¹⁾
	ERHQ_V39	Standard	Use prohibited

(1) Combination of both options is prohibited.

INSTALLATION GUIDELINES

Precautions for selecting the location



WARNING

- Make sure to provide for adequate measures in order to prevent that the outdoor unit be used as a shelter by small animals.
- Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.

- The equipment is not intended for use in a potentially explosive atmosphere.
- Choose a place solid enough to bear the weight and vibration of the unit, where the operation noise will not be amplified.
- Choose a location where the hot air discharged from the unit or the operation noise will not cause a nuisance to the neighbours of the user.
- Avoid places near a bedroom and the like, so that the operation noise will cause no trouble.
- There must be sufficient space for carrying the unit into and out of the site.
- There must be sufficient space for air passage and no obstructions around the air inlet and the air outlet.
- The site must be free from the possibility of flammable gas leakage in a nearby place.
- Locate the unit so that the noise and the discharged hot air will not annoy the neighbours.
- Install units, power cords and inter-unit cables at least 3 m away from television and radio sets. This is to prevent interference to images and sounds.
- Depending on radio wave conditions, electromagnetic interference may still occur even if installed more than 3 m away.
- In coastal areas or other places with salty atmosphere of sulfate gas, corrosion may shorten the life of the outdoor unit.
- Since drain flows out of the outdoor unit, do not place anything under the unit which must be kept away from moisture.



Units cannot be installed hanging from ceiling or stacked.

Selecting a location in cold climates



CAUTION

When operating the outdoor unit in a low outdoor ambient temperature, be sure to follow the instructions described below.

- To prevent exposure to wind, install the outdoor unit with its suction side facing the wall.
- Never install the outdoor unit at a site where the suction side may be exposed directly to wind.
- To prevent exposure to wind, install a baffle plate on the air discharge side of the outdoor unit.

- In heavy snowfall areas it is very important to select an installation site where the snow will not affect the unit. If lateral snowfall is possible, make sure that the heat exchanger coil is not affected by the snow (if necessary construct a lateral canopy).



Construct a large canopy.

Construct a pedestal.

Install the unit high enough off the ground to prevent burying in snow.

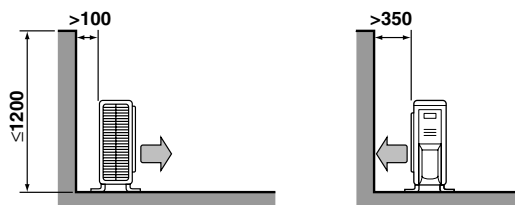
Refrigerant piping specifications

Refrigerant piping specifications	
Maximum allowable piping length between outdoor unit and indoor unit	30 m
Minimum required piping length between outdoor unit and indoor unit	3 m
Maximum allowable height difference between outdoor unit and indoor unit	20 m
Additional refrigerant required for refrigerant pipe exceeding 10 m in length	20 g/m
Gas pipe - outer diameter	15.9 mm (5/8")
Liquid pipe - outer diameter	6.4 mm (1/4")

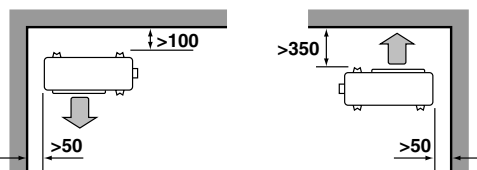
Installing near a wall or obstacle

- Where a wall or other obstacle is in the path of the outdoor unit air intake or exhaust airflow, follow the installation guidelines below.
- For any of the installation patterns below, the wall height on the exhaust side should be 1200 mm or less.

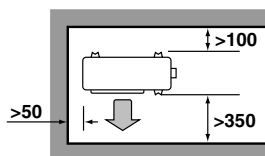
Wall facing one side (unit: mm)



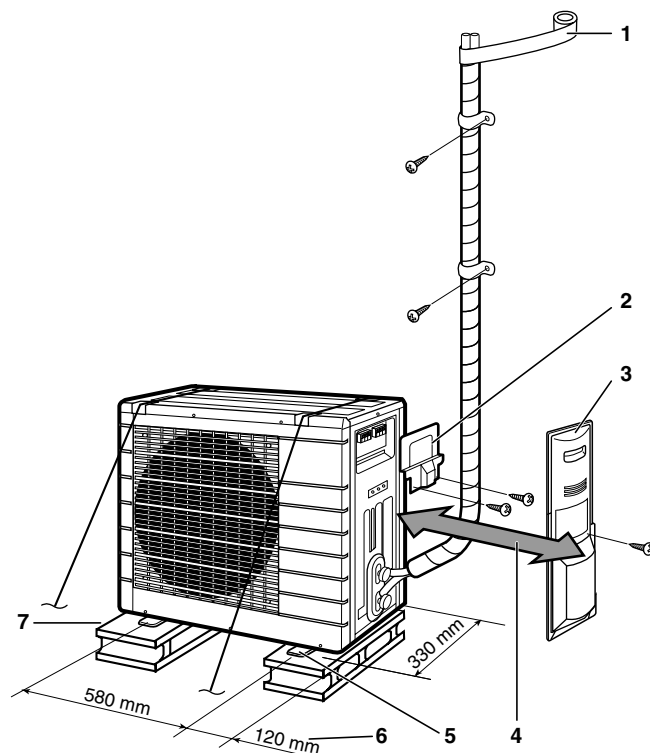
Walls facing two sides (unit: mm)



Walls facing three sides (unit: mm)



Outdoor unit installation drawing



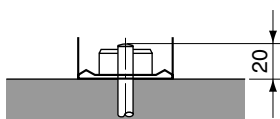
- 1 Wrap the insulation pipe with finishing tape from bottom to top.
- 2 Service cover
- 3 Stop valve cover
- 4 250 mm from wall. Allow space for piping and electrical servicing.
- 5 If there is danger of the unit falling or overturning, fix the unit with foundation bolts, or with wire or other means.
- 6 Distance from the outer side of the stop valve cover
- 7 If the location does not have good drainage, place the unit on block bases. Adjust foot height until the unit is levelled. Failure to do so may result in water leakage or accumulation.

INSTALLATION PROCEDURE

Mounting the outdoor unit

When installing the outdoor unit, please refer to "Installation guidelines" on page 2 to select an appropriate location.

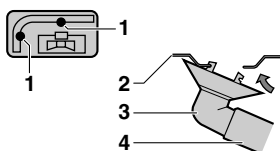
- 1 Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise after installation.
- 2 Prepare 4 sets of M8 or M10 foundation bolts, nuts and washers each (field supply).
- 3 Fix the unit securely by means of the foundation bolts in accordance with the foundation drawing.
It is best to screw in the foundation bolts until their length remains 20 mm above the foundation surface.



Drain work

Check in the combination table under "Possible options" on page 2 whether drain work is allowed. In case drain work on your unit is allowed and the installation site requires drain work, then follow the guidelines below.

- Drain kits for drainage are available as option.
- If the drain ports are covered by a mounting base or floor surface, place additional bases of at least 30 mm high under the outdoor unit's feet.
- In cold areas, do not use a drain hose with the outdoor unit. Drain water may freeze, impairing the heating performance. In case use of a drain hose is unavoidable for one reason or another, it is recommended to install the optional bottom plate heater tape (EKBPH).
Make sure the drain works properly.

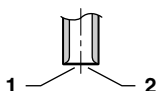


- 1 Drain water holes
- 2 Bottom frame
- 3 Drain socket (optional)
- 4 Hose (field supply, inner diameter 16 mm)

Flaring the pipe end

To flare each pipe end, follow the procedure below:

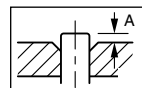
- 1 Cut the pipe end with a pipe cutter.
- 2 Remove burrs with the cut surface facing downward so that the chips do not enter the pipe.



- 1 Cut exactly at right angles.
- 2 Remove burrs

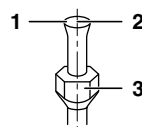
- 3 Remove the flare nut from the stop valve and put the flare nut on the pipe.

- 4 Flare the pipe. Set exactly at the position shown below.



Conventional flare tool			
Flare tool for R410A (clutch type)	Clutch type (Rigid-type)	Wing nut type (Imperial-type)	
A	0~0.5 mm	1.0~1.5 mm	1.5~2.0 mm

- 5 Check that the flaring is properly made.



- 1 Flare's inner surface must be flaw-free.
- 2 The pipe end must be evenly flared in a perfect circle.
- 3 Make sure that the flare nut is fitted.

Connecting the refrigerant piping to the outdoor unit



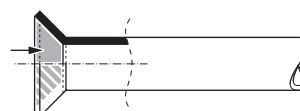
All field piping must be installed by a licensed refrigeration technician and must comply with relevant local and national regulations.



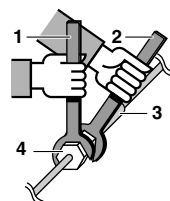
CAUTION

- Do not use mineral oil on flared part. Mineral oil getting into the system would reduce the lifetime of the units.
- Never use piping which has been used for previous installations. Only use parts which are delivered with the unit.
- Do never install a drier to this R410A unit in order to guarantee its lifetime. The drying material may dissolve and damage the system.
- Incomplete flaring may cause refrigerant gas leakage.

- 1 When connecting the flare nut, coat the flare inner surface with ether oil or with ester oil and initially tighten 3 or 4 turns by hand before tightening firmly.



- 2 When loosening a flare nut, always use two wrenches together. When connecting the piping, always use a spanner and torque wrench together to tighten the flare nut to prevent nut cracking and leaks.



- 1 Torque wrench
- 2 Spanner
- 3 Piping union
- 4 Flare nut

Flare nut	Flare nut tightening torque
Ø6.4 mm (1/4")	15~17 N·m
Ø15.9 mm (5/8")	63~75 N·m

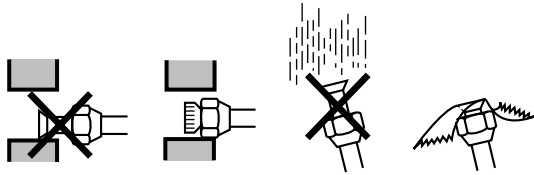
Valve cap tightening torque	
Valve cap	Gas pipe
Ø6.4 mm (1/4")	21.6~27.4 N·m
Ø15.9 mm (5/8")	44.1~53.9 N·m

Service port cap tightening torque	
10.8~14.7 N·m	

Refrigerant piping work

Pipe handling guidelines

- Protect the open end of the pipe against dust and moisture.
- All pipe bends should be as gentle as possible. Use a pipe bender for bending.
Bending radius should be 30 to 40 mm or larger.

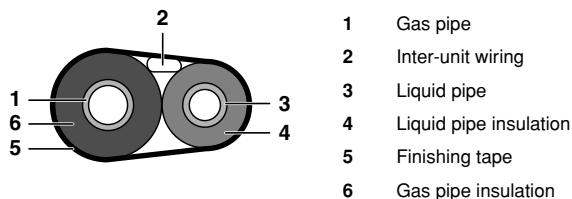


Selection of copper and heat insulation materials

When using commercial copper pipes and fittings, observe the following:

- Insulation material: polyethylene foam
Heat transfer rate: 0.041 to 0.052 W/mK (0.035 to 0.045 kcal/mh°C)
Refrigerant gas pipe's surface temperature reaches 110°C max.
Choose heat insulation materials that will withstand this temperature.
- Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

Pipe size		Pipe insulation	
Outer diameter	Thickness	Inner diameter	Thickness
6.4 mm (1/4")	0.8 mm	8-10 mm	≥10 mm
15.9 mm (5/8")	1.0 mm	16-20 mm	≥13 mm



- Use separate thermal insulation pipes for gas and liquid refrigerant pipes.

Purging air and checking gas leakage

When all piping work is completed and the outdoor unit is connected to the indoor unit, it is necessary to purge the air and check for gas leakage.



WARNING

- Do not mix any substance other than the specified refrigerant (R410A) into the refrigeration cycle.
- When refrigerant gas leaks occur, ventilate the room as soon and as much as possible.
- R410A, as well as other refrigerants, should always be recovered and never be released directly into the environment.

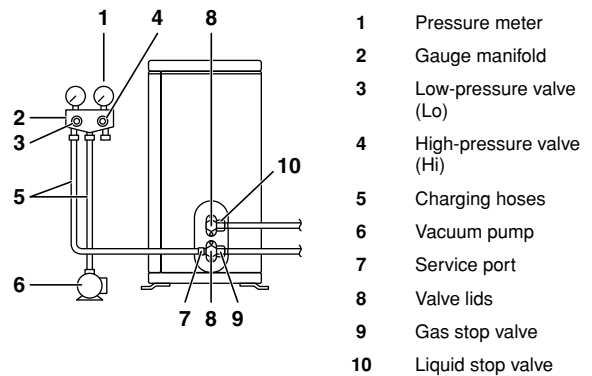


CAUTION

Use a vacuum pump for R410A exclusively. Using the same vacuum pump for different refrigerants may damage the vacuum pump or the unit.

- If using additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump, then charge additional refrigerant.
- Use a hexagonal wrench (4 mm) to operate the stop valve rod.

- All refrigerant pipe joints should be tightened with a torque wrench at the specified tightening torque. See "Connecting the refrigerant piping to the outdoor unit" on page 4 for details.



- 1 Connect the projection side (on which the worm pin is pressed) of the charging hose coming from the gauge manifold to the gas stop valve's service port.
- 2 Fully open the gauge manifold's low-pressure valve (Lo) and completely close its high-pressure valve (Hi).
The high-pressure valve subsequently requires no operation.
- 3 Apply vacuum pumping. Check that the compound pressure gauge reads -0.1 MPa (-760 mm Hg).

	Pipe length	
	≤15 m	>15 m
Run time	≥10 minutes	≥15 minutes

- 4 Close the gauge manifold's low-pressure valve (Lo) and stop the vacuum pump.

Leave as is for 4-5 minutes and make sure that the coupling meter needle does not go back.

NOTE



If the meter needle does go back, this may indicate presence of moisture or leaking from connecting parts. Repeat steps 2 through 4 after checking all connecting parts and slightly loosening and retightening the nuts.

- 5 Remove the covers from the liquid stop valve and gas stop valve.
- 6 Turn the liquid stop valve's rod 90 degrees counterclockwise with a hexagonal wrench to open the valve.
Close it after 5 seconds, and check for gas leakage.
Using soapy water, check for gas leakage from the indoor unit's flare and the outdoor unit's flare and the valve rods.
After the check is complete, wipe all soapy water off.
- 7 Disconnect the charging hose from the gas stop valve's service port, then fully open the liquid and gas stop valves.
Do not attempt to turn the valve rod beyond its stop.
- 8 Tighten the valve lids and service port caps for the liquid and gas stop valves with a torque wrench at the specified torques. See "Connecting the refrigerant piping to the outdoor unit" on page 4 for details.

Charging refrigerant

This outdoor unit is factory charged.

Important information regarding the refrigerant used

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.

Refrigerant type: R410A

GWP⁽¹⁾ value: 1975

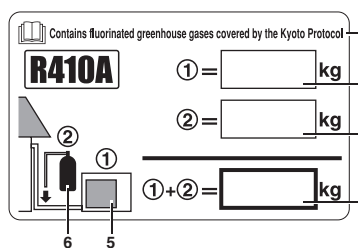
⁽¹⁾ GWP = global warming potential

Please fill in with indelible ink,

- ① the factory refrigerant charge of the product,
- ② the additional refrigerant amount charged in the field and
- ①+② the total refrigerant charge

on the fluorinated greenhouse gases label supplied with the product.

The filled out label must be adhered on the inside of the product and in the proximity of the product charging port (e.g. on the inside of the service cover).

	<p>1 Factory refrigerant charge of the product: see unit name plate</p> <p>2 Additional refrigerant amount charged in the field</p> <p>3 Total refrigerant charge</p> <p>4 Contains fluorinated greenhouse gases covered by the Kyoto Protocol</p> <p>5 Outdoor unit</p> <p>6 Refrigerant cylinder and manifold for charging</p>
--	--

NOTE



National implementation of EU regulation on certain fluorinated greenhouse gases may require to provide the appropriate official national language on the unit. Therefore, an additional multilingual fluorinated greenhouse gases label is supplied with the unit.

Sticking instructions are illustrated on the backside of that label.

Re-charging

In case re-charging is required, refer to the nameplate of the unit. The nameplate states the type of refrigerant and necessary amount.

Charging additional refrigerant

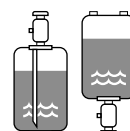
If the total length of refrigerant piping exceeds 10 m in length, additionally charge with 20 g of refrigerant (R410A) for each additional meter of piping.

Determine the weight of refrigerant to be charged additionally and fill in the amount in the service sticker on the rear side of the stop valve cover.

Precautions when adding R410A

- Be sure to charge the specified amount of refrigerant in liquid state to the liquid pipe.
Since this refrigerant is a mixed refrigerant, adding it in gas form may cause the refrigerant composition to change, preventing normal operation.
- Before charging, check whether the refrigerant cylinder is equipped with a siphon tube or not (the cylinder should be marked with "liquid filling siphon attached" or something similar).

Charge the liquid refrigerant with the cylinder in upright position.



Charge the liquid refrigerant with the cylinder in up-side-down position.

- Be sure to use tools exclusively for R410A to ensure required pressure resistance and to prevent foreign materials from mixing into the system.

Wiring



WARNING

- All wiring must be performed by an authorized electrician.
- The power supply cable and circuit breaker must be selected in accordance with local and national regulations.
- Do not use tapped wires, stranded conductor wires (see caution 1 under "Notes to observe" on page 7), extension cords, or connections from a star system, as they may cause overheating, electrical shock or fire.
- Do not use locally purchased electrical parts inside the product and do not branch the power for the heater tape, etc., from the terminal block. Doing this may cause electrical shock or fire.
- Be sure to install an earth leakage circuit breaker. This unit uses an inverter, which means that an earth leakage circuit breaker capable of handling high harmonics needs to be used in order to prevent malfunctioning of the earth leakage circuit breaker itself.
- A main switch or other means for disconnection, having a contact separation in all poles, must be incorporated in the fixed wiring in accordance with relevant local and national legislation.



WARNING

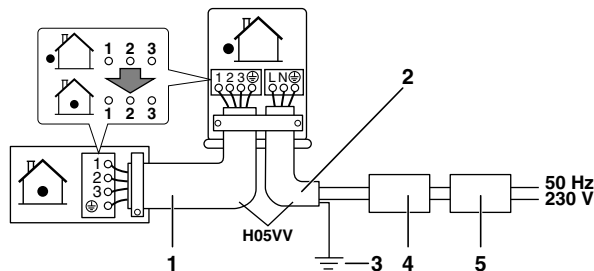
Do not turn ON the safety breaker until all work is completed.

Equipment complying with EN/IEC 61000-3-12⁽¹⁾

⁽¹⁾ European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase.

Procedure

- 1 Strip the insulation from the wire (20 mm).
- 2 Connect the connection wires between the indoor and outdoor units **so that the terminal numbers match** (see wiring diagram below). Tighten the terminal screws securely. We recommend a flathead screwdriver to tighten the screws. See also caution 2 under "Notes to observe" on page 7 for wiring guidelines.

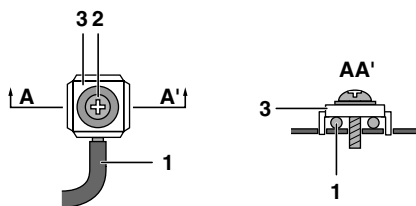


- 1 Interconnection between indoor unit and outdoor unit : when wire length exceeds 10 m, use Ø2.5 mm wires instead of Ø1.5 mm wires.
- 2 Power supply cable (refer to the unit nameplate for maximum running current)
- 3 Earth
- 4 Safety breaker
- 5 Earth leakage circuit breaker

3 Earth terminal installation

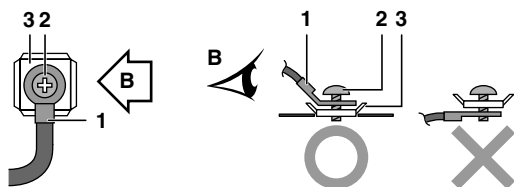
NOTE This unit must be earthed.
For earthing, follow the applicable local standard for electrical installations.

- Use the following method when installing single core wires.



- 1 Single core wire
- 2 Screw
- 3 Flat washer

- Use the following method when using round crimp-style terminals.

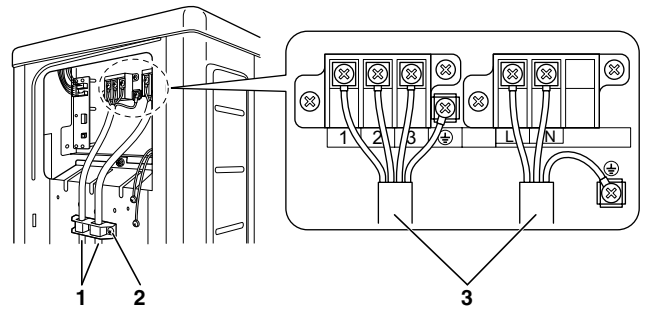


- 1 Round crimp-style terminal
- 2 Screw
- 3 Flat washer

- 4 Pull the connected wire and make sure that it does not disconnect. Then fix the wires in place in the wire clamp. See also "Notes to observe" on page 7.

Notes to observe

Observe the notes mentioned below when wiring to the power supply terminal board.

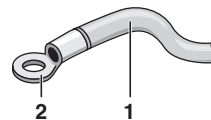


- Use the specified wire type and connect it securely (1).
- Firmly secure the wire clamp so that wire terminations do not receive external stress (2).
- Shape wires so that the service cover and stop valve cover fit securely (3).



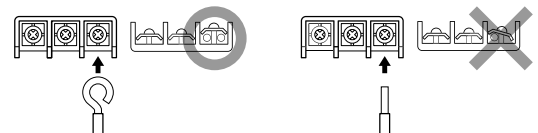
CAUTION

1. In case the use of stranded conductor wires is unavoidable for one reason or another, make sure to install round crimp-style terminals on the tip. Place the round crimp-style terminal on the wire up to the covered part and fasten the terminal with the appropriate tool.



- 1 Stranded conductor wire
- 2 Round crimp-style terminal

2. When connecting the connection wires to the terminal board using a single core wire, be sure to perform curling.



Not executing the connections properly may cause heat and fire.

Strip the wire at terminal block:



- 1 Strip wire end to this point
- 2 Excessive strip length may cause electrical shock or leakage.

TEST RUN AND FINAL CHECK



NOTE Remark that during the first running period of the unit, required power input may be higher than stated on the nameplate of the unit. This phenomenon originates from the compressor that needs elapse of a 50 hours run in period before reaching smooth operation and stable power consumption.

Trial operation and testing

- 1 Measure the voltage at the primary side of the safety breaker. Check that it is 230 V.
- 2 Carry out the test operation in accordance with the indoor installation manual and operation manual to ensure that all functions and parts are working properly.



- The unit requires a small amount of power in its standby mode. If the system is not to be used for some time after installation, shut off the circuit breaker to eliminate unnecessary power consumption.
- If the circuit breaker trips to shut off the power to the outdoor unit, the system will restore the original operation mode when the power supply is restored.

Items to check

Check	Symptom
Outdoor unit is installed properly on solid base.	Fall, vibration, noise
No refrigerant gas leaks.	Incomplete cooling/heating function
Refrigerant gas and liquid pipes are thermally insulated.	Water leakage
System is properly earthed.	Electrical leakage
The specified wires are used for interconnecting wire connections.	Inoperative or burn damage
Outdoor unit air intake and exhaust is free of obstructions. Stop valves are opened.	Incomplete cooling/heating function



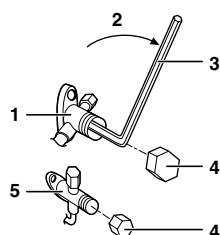
NOTE Have the customer actually operate the unit while looking at the manual included with the indoor unit. Instruct the customer how to operate the unit correctly.

PUMP DOWN OPERATION

In order to protect the environment, be sure to pump down when relocating or disposing of the unit. The pump down operation will extract all refrigerant from the piping into the outdoor unit.

Pump down procedure

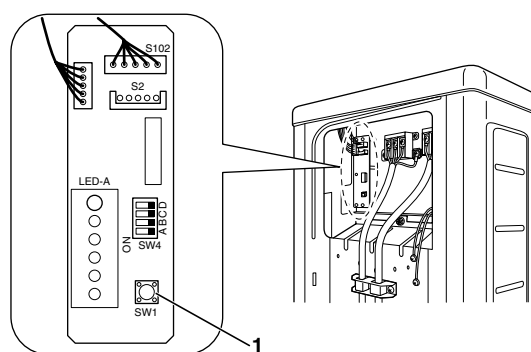
- 1 Remove the valve lid from liquid stop valve and gas stop valve.
- 2 Carry out the forced cooling operation.
- 3 After 5 to 10 minutes (after only 1 or 2 minutes in case of very low ambient temperatures ($<-10^{\circ}\text{C}$)), close the liquid stop valve with a hexagonal wrench.
- 4 After 2-3 minutes, close the gas stop valve and stop forced cooling operation.



- 1 Gas stop valve
- 2 Close
- 3 Hexagonal wrench
- 4 Valve lid
- 5 Liquid stop valve

Forced cooling operation

- 1 Press the forced operation switch SW1 to begin forced cooling.
- 2 Press the forced operation switch SW1 again to stop forced cooling.



- 1 Forced operation switch SW1

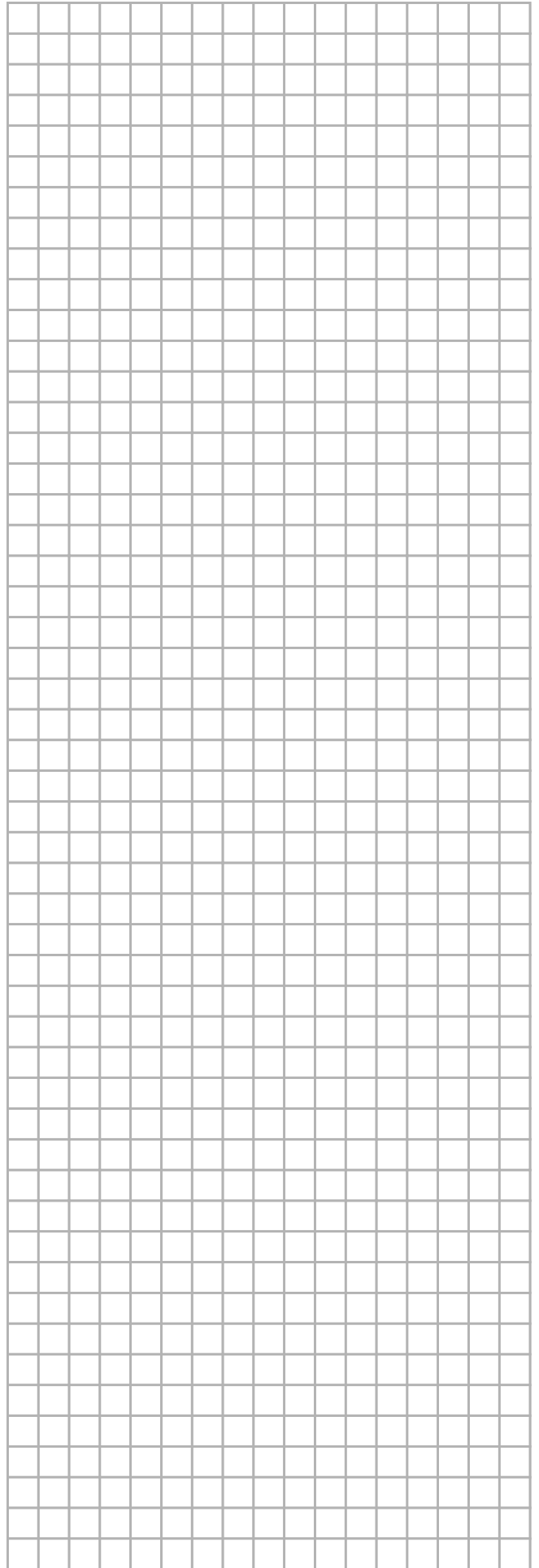
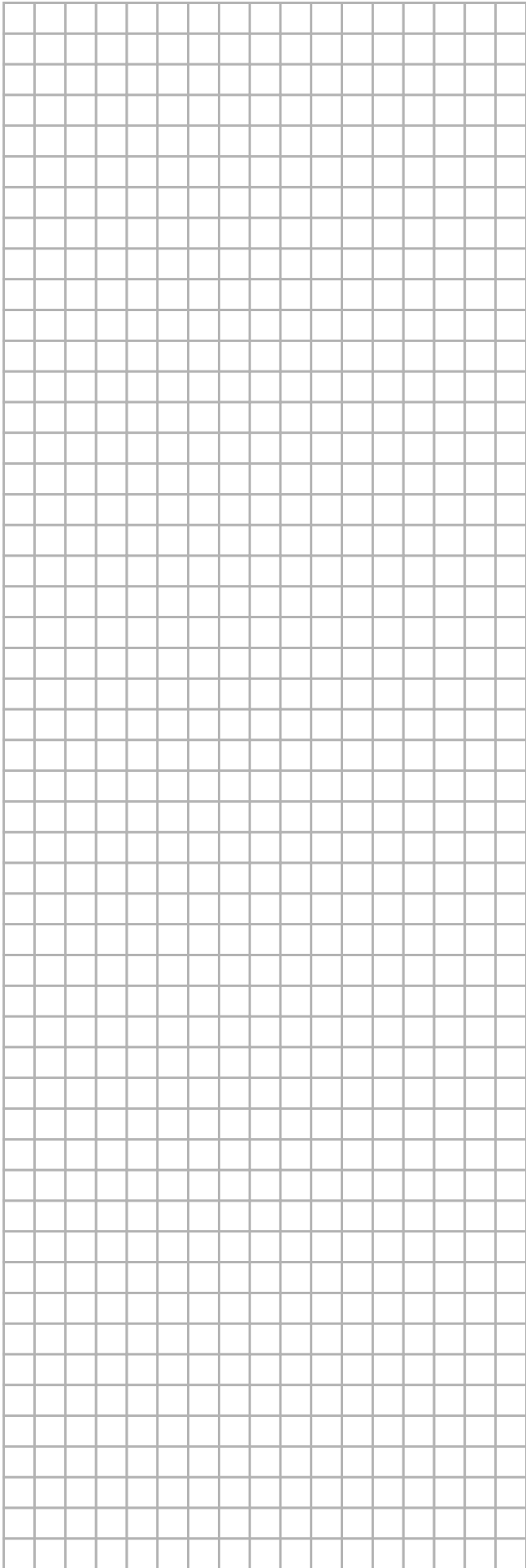


NOTE Take care that while running forced cooling operation the water temperature remains higher than 5°C (see temperature read out of the indoor unit). You can achieve this, for example, by activating all fans of the fan coil units.

DISPOSAL REQUIREMENTS

Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.

NOTES





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